

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

MAGNETIC BEVERAGE HOLDER

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] This invention relates to a single beverage holder of the type commonly used for holding and keeping a canned or bottled beverage cool during consumption. Such holders, often referred to as "coozies," are typically made, at least in part, of a thermally insulative polymeric material.

2. Description of Related Art

[0002] Polymeric beverage holders useful with single cans or bottles are well known. Ordinarily, such beverage holders are made with a side wall that is substantially cylindrical and a bottom that is unitarily formed or separately made. If separately made, the bottom is circumferentially attached to the lower end of the side wall using an adhesive, by sonic welding, or by other similarly effective means. Alternatively, the side walls of conventional beverage holders are sometimes made so that at least the outwardly facing surface is curvilinear in both the vertical and circumferential directions to provide an outside profile that is distinctive in appearance and is more easily gripped by a user. Processes such as dip molding and injection molding are often used to make the subject articles. Materials known for use in making conventional beverage holders can include, for example and without limitation, foamed or unfoamed, moldable polymeric resins, elastomers or combinations thereof. Examples of such polymers include

polyurethane, polyalkenes, neoprene, polyurea, polystyrene, polyamides and polyisocyanates. Outer layers or coatings of a dissimilar material, such as a synthetic fabric, are sometimes provided to facilitate the application of printing or other graphics to the outside surface, or to achieve other benefits or effects in appearance and/or function. In some cases, an aperture is provided in the side or bottom wall to facilitate the ingress or egress of air during removal or insertion, respectively, of a can or bottle from a snugly fitting inside wall.

[0003] U.S. 4,510,665, for example, discloses a container insulation apparatus having a wider diameter base than sidewall created by wrapping unicellular foam around a round disk that serves at the bottom and applying a vinyl coating to the sidewall to taper the sidewall sleeve above the round bottom. A hole is cut through the sidewall sleeve near the base end to function as a vacuum breaker during removal of a beverage container from the sleeve.

[0004] Other beverage holders have previously been disclosed that employ magnets to impart a magnetic field to the contained beverage. Such fields are taught, for example, by U.S. 6,390,319 and other references cited therein to promote preservation and purification of the contained liquids, or to provide other perceived therapeutic benefits. FIG. 3 of U.S. 6,390,319 discloses the use of an axial ring magnet in the side wall of an insulating beverage overlayer made of blown polymeric foam for such purposes. The use of a flexible magnet having ferromagnetic particles embedded in an elastically deformable sheet, or a plurality of bar magnets disposed around the circumference of a foam cylinder to impart a magnetic field to the beverage, is also disclosed.

[0005] Other beverage holders have previously been disclosed that employ magnets to stabilize a beverage container on an underlying support surface. U.S. 3,610,459 discloses the use of permanent magnets to retain dishes on a tray when transporting the tray to a table. U.S. 5,186,350 discloses an insulated beverage container holder having a recess in its

bottom surface to receive a disk-shaped magnet that is attachable to the bottom for the purpose of maintaining the beverage container on an underlying support surface. U.S. 6,065,632 discloses another container for beverages that has a magnetic base which stabilizes the container when placed on underlying metallic surfaces. In that device, the magnet is preferably of the ceramic type or else made by pouring a ferrous-metal-impregnated plastic into the base of the outer wall section and allowed to solidify while exposed to a magnetic field. The resulting magnet rests on the outer floor portion and is integral with the container so that its weight serves as ballast while the magnetic field clamps the container to an underlying metallic surface.

[0006] The use of magnets in beverage holders as disclosed in the prior art does not, however, function satisfactorily for the purpose of firmly supporting a full can or bottle of beverage in an upright orientation on a substantially vertical, ferrous metal support surface, such as the side of a motor vehicle, steel beam, wall, filing cabinet, or the like. The use of a ring magnet or a plurality of magnets disposed around the periphery of the side wall of a cylindrical beverage holder has been found to provide insufficient contact with a substantially planar and vertical support surface to hold a beverage firmly in one position. Such beverage holders tend to detach, slide down the vertical surface, or "roll" sideways over the metal surface under the influence of the magnetic field.

[0007] An improved beverage holder is therefore needed that has a side which can be attached firmly to a substantially vertical, ferrous metal support surface, even when supporting a full beverage container.

SUMMARY OF THE INVENTION

[0008] A beverage holder that is inexpensive but will firmly support a full beverage can or bottle in an upright position firmly against a substantially vertical, ferrous metal surface is disclosed herein. The beverage holder of the invention can be conveniently used, for example, to support a beverage in an upright position on the face of a filing cabinet within each reach of an individual working at a desk without fear of inadvertent tipping or spillage. The beverage holder of the invention can also be used to support a beverage in an upright position on the side of a parked motor vehicle during tailgate parties, or on the sides of structural members of buildings when placed there by workers, or on machinery or heavy equipment where there is no readily available horizontal surface on which to rest a beverage holder or where vibrations might otherwise cause a conventional beverage holder to slide off a support surface.

[0009] According to one preferred embodiment of the invention, a thermally insulative, polymeric beverage holder is provided that has inner and outer side wall sections with a magnet having a substantially flat, outwardly facing surface disposed between the inner and outer side wall sections of the holder. The magnet can be completely embedded in the side wall during manufacture or can be inserted later into a slit or pocket made in the side wall of the holder. When installed in this manner, the magnet is not visible externally and will not scratch or mar the surface of any ferrous metal support member to which the beverage holder is releasably secured.

[0010] According to another preferred embodiment of the invention, a thermally insulative beverage holder is provided that comprises a vertically oriented, disk-shaped magnet disposed inside a side wall section thereof in such manner that the outer side wall section containing the magnet is caused to assume an substantially flat, outside surface that can be placed in contact with an abutting flat surface of a substantially vertical, ferrous metal-containing structural member to support the beverage holder in a substantially upright position.

[0011] The beverage holder of the invention can optionally comprise, in addition to a side wall magnet as described herein, a bottom wall portion in which another magnet is disposed to prevent the beverage holder from sliding along an inclined surface having a major horizontal component. When configured with magnets as disclosed herein disposed in both the bottom and side walls, the user is provided with the option of selectively placing the subject beverage holder on either a substantially vertical or substantially horizontal ferrous metal surface without risk of tipping, rolling or sliding, and associated spillage.

[0012] The magnet used in the side wall section of the subject beverage holder is desirably a permanent magnet and will preferably impart to a substantially vertical wall comprising a major ferrous metal component a magnetic attractive force that is sufficiently large and is applied over a sufficiently large area that the weight of a full beverage container disposed inside the holder is supported in an upright position against the wall without relative motion between the beverage holder and the wall, and without attendant risk of resultant tipping or spillage absent the intervention of another external force. If desired, the subject beverage holder can be made with a separate liner that is made of a polymeric material more rigid than the outer body.

[0013] A further aspect of the invention is that the flat surface section imparted to the side wall of a beverage holder by the magnet embedded or inserted into the side wall provides a convenient mounting surface by which the subject beverage holders can be attached to metal shelving for display purposes at the point of sale. Thus, for example, the subject beverage holders can be releasably attached to the metal walls, shelves or doors of display cases in which refrigerated beverages are sold. While there is no inherent limit in the size of the beverage holders that can be made as disclosed herein, beverage holders suitable for use with single serving beverage containers containing up to about 20 fluid ounces are particularly preferred.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The apparatus of the invention is further described and explained in relation to the following figures of the drawings wherein:

FIG. 1 is a perspective view showing the magnetic beverage holder of the invention attached to the outside surface of a rear quarter panel of a pickup truck;

FIG. 2 is a cross-sectional front elevation view taken along line 2—2 of FIG. 1;

FIG. 3 is a side elevation view of the subject beverage holder;

FIG. 4 is a cross-sectional plan view taken along line 4—4 of FIG 1;

FIG. 5 is a cross-sectional front elevation view of an alternate embodiment of the beverage holder of the invention;

FIG. 6 is a cross-sectional front elevation view of yet another alternate embodiment of the invention, which is shown resting on an inclined supporting surface.;

FIG. 7 is a perspective view of yet another alternate embodiment of the invention that comprises an insertable, more rigid polymeric liner;

FIG. 8 is an exploded perspective view of the magnetic beverage holder of FIG. 7;

FIG. 9 is a top plan view of the beverage holder of FIG. 7;

FIG. 10 is a bottom plan view of the beverage holder of FIGS. 7 and 9;

FIG. 11 is a cross-sectional elevation view taken along line 11—11 of FIG. 7; and

FIG. 12 is a cross-sectional elevation view taken along line 12—12 of FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] Referring to FIG. 1, beverage holder 10 of the invention is shown in juxtaposition to a substantially vertical, rear quarter panel 12 of a conventional pickup truck to which beverage holder 10 is releasably attached. At least the portion of quarter panel 12 to which beverage holder 10 is releasably attached is understood to comprise a ferrous metal that is capable of being attracted to the magnetic field of a magnet disposed inside the side wall of beverage holder 10. The magnitude of the attractive force between quarter panel 12 and the magnet disposed inside the side wall of beverage holder 10, when coupled with the normal frictional force present at the interface between quarter panel 12 and the adjacent outside surface of beverage holder 10, is desirably sufficient to resist the gravitational force exerted on beverage holder 10 and hold beverage holder 10 in a desired, substantially upright position relative to quarter panel 12, even when a full beverage container is present inside the beverage holder. Also, while beverage holder 10 is depicted for illustrative purposes as being supported by its side wall in a substantially upright position against quarter panel 12 of a pickup truck, it will be appreciated upon reading this disclosure that beverage holder 10, when made in accordance with the present invention, can likewise be used to hold a beverage container in juxtaposition to many other types of ferrous-metal-containing structures having substantially vertical surfaces. Such structures can include, for example, metal walls, braces, I-beams, equipment, tools, furniture, fixtures, filing cabinets and the like.

[0016] The structure and configuration of a preferred beverage holder 10 of the invention are further described and explained below in relation to FIGS. 2 through 4 of the drawings. Beverage holder 10 preferably comprises a thermally insulative, flexible polymeric material that is most preferably foamed and most preferably comprises an elastomeric component. Structurally, beverage holder 10 comprises a substantially cylindrical side wall having a height and diameter that are suitable for use with the external dimensions of a beverage container, most preferably a single serving

beverage container, with which beverage holder 10 is intended to be used. Beverage containers useful with beverage holder 10 of the invention can be made of plastic, metal or glass. The side wall of beverage holder 10 preferably further comprises outside surface 14, inside surface 16, and interior portion 18. The top of the side wall is defined by edge 25. Interior portion 18 can comprise open cell or closed cell foam, although outside and inside surfaces, 14, 16, respectively, are preferably closed cell foam. Outside surface 14 and/or inside surface 16 can also comprise a continuous polymeric skin, or another overlying coating or cladding material of the same or a dissimilar material. The use of a slightly tacky polymeric or rubbery material on outside surface 14 of beverage holder 10 is preferred to facilitate manual gripping without slippage. Vinyl plastisol coatings are particularly preferred where beverage holder 10 is dip molded. It should also be appreciated that while the side wall of beverage holder 10 is, in its simplest form, substantially cylindrical, other internal and external geometries can also be utilized within the scope of the invention provided that a substantially flat, outwardly facing, side wall surface portion 14' is provided for use in attaching beverage holder 10 in an upright position to a substantially vertical support surface or member.

[0017] Bottom 24 can be made of the same or a different material, and can be made unitarily with the side wall section or can be separately formed and then attached to the lower portion of the sidewall by any suitable means. Most preferably, bottom 24 is formed together with the side wall section of beverage holder 10 by dip molding or injection molding, or by another manufacturing method that is similarly effective for producing the desired structure. As depicted in FIGS. 2 and 4, bottom 24 of beverage holder 10 is also made of a thermally insulative polymeric material and comprises at least one aperture 26 that permits the egress and ingress of air during insertion and removal, respectively, of a beverage container 22 relative to beverage holder 10.

[0018] A round, disk-shaped magnet 28 is preferably embedded inside the side wall of beverage holder 10 in such manner that the thickness of interior wall portion 18' between magnet 28 and outside surface 14' adjacent thereto is no greater, and most preferably less, than the thickness of interior wall portion 18'' between magnet 28 and that portion of inside surface 16 that is disposed inwardly of magnet 28. When configured in this manner, magnet 28 is well protected so that it will not scratch a ferrous metal surface in juxtaposition to outside surface 14' but can still exert a magnetic field of sufficient strength to hold beverage holder 10 in fixed relation to the ferrous metal surface. Because there is no need or intention to create a magnetic flux inside the liquid disposed inside a beverage container, proximity of magnet 28 to interior 20 of beverage holder 10 is not critical and the use of a magnet 28 on only one side of beverage holder 10 is preferred.

[0019] Magnet 28 can be made of any material generally characterized as a "permanent magnet" that is shaped to impart a substantially flat, outwardly facing surface to the side wall of beverage holder 10 once magnet 28 is in place, and that is capable of being magnetized sufficiently to support beverage holder 10 containing beverage container 22 in fixed juxtaposition to a substantially vertical, ferrous metal surface such as quarter panel 12 with which the flat, outwardly facing surface is placed in contact during use. Such magnets are commonly referred to as "disk magnets" and are commercially available. Most preferably, magnet 28 is a pressed neodymium iron boron (NdFeB) magnet having a diameter of about 5 cm and a thickness of about 3 mm, said magnet being magnetized sufficiently to support beverage holder 10 and a plastic or aluminum container holding 20 fluid ounces in fixed relation to a vertical, ferrous-metal object having a smooth, painted surface. It will be appreciated, however, upon reading this disclosure, that magnets 28 suitable for use in beverage holders 10 but having other dimensions and made of other materials can likewise be used in the invention provided that magnet 28 imparts an outwardly facing, substantially flat surface on one side of beverage holder 10

and provides sufficient magnetic attraction and resistance to rolling that beverage holder 10 will remain in place in an upright position against a substantially vertical support surface until removed by the user or acted upon by another external, non-gravitational force. Examples of other materials that can be used as magnets in the present invention include barium ferrite magnets and strontium ferrite magnets.

[0020] Another preferred embodiment of the invention is described in relation to FIG. 5. In this embodiment, beverage holder 30 comprises substantially cylindrical side wall 32 having top edge 35, bottom 34 and aperture 36 to permit ingress and egress of air from the interior space whenever a beverage container 33 is being removed or inserted, respectively. This embodiment of the invention differs principally from that described in relation to FIGS. 2 through 4 in that magnet 40 is disposed in a pocket 42 in side wall 32. Arrow 44 depicts in illustrative form the manner in which magnet 40 can be inserted into pocket 42, which should of course occur during manufacture and prior to insertion of beverage container 33. The insertion of magnet 40 into side wall 32 creates a substantially flat, outwardly facing surface section 38. Surface section 38 is desirably placed in facing contact with a substantially vertical, ferrous-metal-containing support surface to releasably hold beverage holder 30 in an upright position in relation to the support surface as previously described for beverage holder 10 in relation to FIG. 1.

[0021] Still another embodiment of the present invention is described in relation to FIG. 6, which depicts beverage holder 50 of the invention, containing beverage container 53, sitting on inclined underlying surface 64. Beverage holder 50 is made substantially as described for beverage holder 10 above, with side wall 52, bottom 54, aperture 56, magnet 60 and outwardly facing, substantially flat, side surface 58 on one side thereof. Beverage holder 50 further comprises a ring magnet 62 preferably embedded or inserted into bottom 54 to provide beverage holder 50 with an expanded functional capability of supporting beverage container 53 in

releasable, substantially fixed relation to a horizontal or inclined underlying surface 64 if desired, in addition to having the capability of supporting beverage container 53 against a substantially vertical wall using flat surface 58 adjacent to magnet 60.

[0022] A thermally insulative, polymeric beverage holder having inner and outer side wall sections with a magnet having a substantially flat, outwardly facing surface disposed therebetween is therefore disclosed herein, the magnet imparting to the subject beverage holder a substantially planar side wall surface that is attachable to a substantially vertical ferrous metal surface with sufficient attractive force to support the weight of a full beverage container disposed inside the holder. A beverage holder having magnets disposed in both the side and bottom walls is also disclosed. The wall portion of the beverage holder that is outside the magnet will desirably conform to the flat surface of the magnet so as to present a flat, outwardly facing surface of sufficient size to support the holder and any beverage disposed therein in a substantially fixed position against a substantially vertical, ferrous metal support surface. As used herein, the term "substantially fixed" is understood to mean bound by the combined magnetic and frictional forces between the holder and the support surface to an extent where the subject beverage holder is maintained in contact with the support surface without relative motion therebetween unless moved to a different location on the surface by application of an external force or removed from the support surface by the user.

[0023] Another preferred embodiment of the invention is described and explained in relation to FIGS. 7-12. Referring to FIGS. 7-12, magnetic beverage holder 70 preferably comprises a flexible, insulative polymeric body 72 having a flat surface 74 disposed on one side thereof, and a more rigid, polymeric liner 76 that is insertable into body 72. Magnet 82 is desirably either insertable into a pocket or recess beneath flat surface 74 or can be insert molded into the side wall of body 72. Bottom wall 92 of body 72 preferably comprises an aperture 94. It should be appreciated that the

outside geometry of body 72 is substantially cylindrical except for flat surface 74, but body 72 can have a curvilinear profile if desired. The body profile best seen in FIG. 11 is not part of the invention but is merely exemplary of the many product profiles that can be used within the scope of the invention, provided that an outwardly facing, flat surface section 74 is provided over magnet 82 to facilitate attachment to a substantially vertical ferrous-metal-containing support surface as discussed above.

[0024] Liner 76, preferably injection molded, further comprises substantially cylindrical side wall 78, bottom wall 90 having an aperture 96, and an outwardly curved lip 80 disposed at the top of side wall 78. The underside of lip 80 desirably faces and abuts top edge 86 of body 72. A plurality of circumferentially spaced vertical ribs 88 are preferably provided inside side wall 78 to make liner 76 more rigid and thereby facilitate insertion of liner 78 into body 72 during assembly. According to a particularly preferred embodiment of the invention, one or more magnets 84 can be disposed between bottom 90 of liner 76 and bottom 92 of body 12. As shown in FIGS. 11 and 12, magnets 84 can be disposed inside retainer walls 98 integrally molded beneath bottom 90, which are provided for that purpose. Referring to FIGS. 11 and 12, air gaps 100 will preferably exist between body 72 and liner side wall 78 to serve as additional thermally insulative barriers and to reduce friction during insertion of liner 76 into body 72. Similarly, reinforcing ribs 88 provide an air gap of small thickness between the inside surface of side wall 78 and the outside surface of a beverage container (not shown) inserted into liner 76, thereby reducing friction and facilitating the insertion and removal of beverage containers from beverage holder 70. The tapered inside top portion of lip 80 also serves as a guide for the insertion of beverages into liner 76 of beverage holder 70.

[0025] Other alterations and modifications of the invention will likewise become apparent to those of ordinary skill in the art upon reading the present disclosure, and it is intended that the scope of the invention disclosed herein be limited only by the broadest interpretation of the appended claims to which the inventor is legally entitled.